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ABSTRACT

An item analysis was performed on two rating scales, the Delta Survey of Nurses and the Delta Nursing Survey, developed for evaluating the preparation and job performance of nursing graduates. Resulting data supported the basic design of the instruments. The revised instruments consist of seven fewer items; two subtests were deleted, and a number of items were revised. The intended use of the instruments is to provide information relevant to the preservice and inservice training of nurses. The two instruments are included. (Author/BW)

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REVISION OF THE DELTA NURSING SCALES

1976 AERA ANNUAL MEETING

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Introduction

The present study was undertaken as a follow-up to a previous study by the authors entitled "The Job Performance of Nursing Graduates: A Program Evaluation."* In that study, two rating scales were constructed and used to assess possible strengths and weaknesses of nursing preparation and training at Delta College, University Center, Michigan, as well as to investigate predictive relationships between grades, nursing board scores, and rated job performance. One scale was completed by recent graduates of the nurse training program; the other scale was completed by doctors and nurses who worked closely with the graduate in the work setting. The scales contained items designed to be parallel in content so that comparisons could be made between the ratings of the graduates and the ratings of their supervisors. One recommendation of the study suggested that the scales be revised for future use on the basis of an item analysis. The present study reports the results of that revision.

* Presented at 1975 AERA Annual Meeting, Washington, D.C.

Instrumentation and Methodology

Each original scale consisted of 62 items arranged in six areas of nursing performance. Respondents indicated their reaction to the items by means of a six-category rating system based upon the Likert Scaling Technique. In addition to the scaled items, there were three open-ended questions which permitted respondents additional freedom to articulate strengths and weaknesses from their perspective. The revision has resulted from information collected from three sources: 1) an item analysis of the 62 scaled items; 2) incorporation of certain performance dimensions evident on the open-ended questions but not clearly represented in the scaled items; 3) suggestions from individuals at Delta College who have participated in the study.

Item Analysis

The Likert Scaling Technique used in the construction of the rating scales operates under a number of assumptions. Among these, the intercorrelations of items in the scales are assumed to be due to a single common factor to which all of the items are mutually related. The item score is assumed to be the weighted sum of this common factor and a factor specific to the item (Shaw and Wright, 1967, p.24).* In the present case, given the fact that six sub-areas of nursing performance were identified, it is assumed that the total scale score is composed of six unidimensional sub-tests, i.e. sub-tests which are intended to represent separate, discrete, and independent areas of nursing performance. Thus an individual item, in this case, is assumed

* Shaw, M. and Wright, J., Scales for the Measurement of Attitudes, McGraw-Hill, 1967

to represent the weighted sum of a common factor called nursing performance, but also the weighted sum of a sub-factor representing a specific area of nursing performance. The item analysis of the scale allows these assumptions to be tested in order to justify the inclusion of individual items and their placement in specific sub-areas. The following criteria were used to assess individual items: 1) the item should demonstrate a moderate (.35) correlation with the total scale 2) the item should correlate more highly with its respective sub-test score than with total scale score or any other sub-test score 3) items which show very high (.85) intercorrelations may measure the same aspect of nursing performance and therefore essentially duplicate one another.

Separate item analyses were compiled for each of the two scales. The method of item analysis used involved computation of Pearson product-moment coefficients among items, sub-tests weighted mean scores, and total test weighted mean scores. Inspection of the resulting data was undertaken according to the three criteria listed above.

Results of the item analysis were quite supportive of the basic design of the instruments. Sub-test correlations with total test results ranged from .47 to .89 with a median correlation of .66. Sub-test inter-correlations ranged from .20 to .59 with a median correlation of .46. Individual items loaded much higher on their respective sub-test than with other sub-tests or total test. Inspection of item inter-correlations revealed that items did cluster together within their respective sub-tests.

Revisions Suggested by Open-ended Questions

One revision strongly suggested by the open-ended questions was an incorporation of items in the interpersonal relations scale which included relationships with supervisors as well as patients. It may be difficult to relate these types of relationships to the nursing curriculum although it would seem to the authors that these performance dimensions may be reflected in the clinical experience components of the program. Several items were therefore added to the scale to reflect this dimension and grouped together in such a way that they could be analyzed as a unit in future uses of the scale.

Specific Revisions

Sub-Test 1: Planning for Nursing Care: Items 1, 2, and 5 were highly intercorrelated which suggested that they reflected a single aspect of nursing performance. Items 1 and 5 were therefore deleted; item 2 was revised to reflect their common content. Item 10 correlated more highly with Sub-test 2; inspection of item content suggests that it indeed does relate more to "implementing" rather than planning. All other items were retained.

Sub-Test 2: Implementing Nursing Care: Item 3 was deleted since it correlated highly with item 1. Item 4 was shortened. Item 10 from Sub-test 1 was added to Sub-test 2. All other items were retained. Items were grouped under a sub-heading entitled "general applications" and "specific applications" which reflected the way the items clustered in the item analysis. These sub-headings could be analyzed separately in future studies.

Sub-Test 3: Interpersonal Relationships and Communication: Items 4 and 6 intercorrelated highly. Item 6 was therefore deleted and item 4 revised to include family aspects referred to in item 6. Results in the original study indicated a clear distinction between relationships with patients and relationships with superiors. Items from sub-tests 6 and 7 of the original scale which related to relationships with superiors were therefore inserted into this sub-test along with 2 additional items that reflected content elicited on the open-ended questions. The items in this sub-test are grouped into the two separate areas and could be analyzed separately in the future.

Sub-Test 4: Unit Procedures and Leadership: All items were retained with the exception of item 8 which was inserted in Sub-test 2. Item 1 from Sub-test 6 which concerned promoting improvement in nursing practice was added to this sub-test. All other items were retained.

Sub-Test 5: Evaluating Nursing Care: Items 5, 6, and 7 intercorrelated highly. Item 7 was deleted. All other items were retained as originally written.

Sub-Tests 6 and 7: Professional Involvement and Other: These two sub-tests consisted of very few items and these items intercorrelated highly. The two sub-tests were therefore deleted - items were added to the remaining 5 sub-tests as noted above.

Summary

The revised instrument consists of 7 fewer items, two sub-tests were deleted, and a number of items were revised. Taken together, these revisions should result in an instrument that has improved measurement characteristics.

Concluding Remarks

The purpose of the instrument has been to identify curriculum strengths and weaknesses to training institutions. The current status of the revised scales will allow their continued use for this purpose so long as the content of instrument validity reflects the objectives of the nursing program and the expectations of employers. It should be noted that the instruments were not designed for individual assessment Persons completing the scales did so under the expectation that the results would not be used for individual selection.

The revised scale will be used in the future with groups of nursing graduates. It is hoped that this information collected with the instruments will prove helpful in the ongoing task of providing the best possible pre-service and in-service training for prospective nurses.

Requests for further information concerning the present study should be directed to:

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THE DELTA NURSING SURVEY

The Delta Nursing Survey contains a series of statements about nursing performance. Read each one, evaluate the performance of the person you are rating, and mark an X under the column that best reflects your evaluation. If you find a statement which does not apply to your situation, mark it under the N/A (not applicable) column.

Try to avoid the tendency to mark all column alike on the basis of a general impression about the person you are rating. Try to distinguish strengths and weaknesses as you see them.

Be as fair and as informative as you can. Ratings of individuals will be held in strict confidence and will be used for research purposes only.

NAME OF RATER_____

NAME OF PERSON RATED_____

DATE_____

The Delta Nursing Survey was constructed by Dr. Barry J. Wilson of the University of Northern Iowa in cooperation with the Office of Research and Development and the Division of Nursing at Delta College, University Center, Michigan.

RATING SCALE

PLANNING FOR NURSING CARE	Poorly prepared	Less than adequately prepared	Adequately prepared	More than adequately prepared	Excellently prepared	Not applicable
1. Identifies patients' needs, taking into account the significant factors: such as, illness, age, general condition, treatment plan, religion, cultural background, etc.	☐	☐	☐	☐	☐	☐
2. Recognizes the priority of needs for a patient.	☐	☐	☐	☐	☐	☐
3. Assesses the condition of a patient accurately.	☐	☐	☐	☐	☐	☐
4. Initiates and writes (if required) a plan of care to meet the needs of the patient.	☐	☐	☐	☐	☐	☐
5. Anticipates the usual pattern of patient progress in a specific condition.	☐	☐	☐	☐	☐	☐
6. Recognizes life threatening situations.	☐	☐	☐	☐	☐	☐
7. Uses techniques of problem solving in nursing care planning.	☐	☐	☐	☐	☐	☐
8. Coordinates the plan of nursing with the medical plan of care.	☐	☐	☐	☐	☐	☐
9. Makes appropriate decisions for implementation of nursing care.	☐	☐	☐	☐	☐	☐

IMPLEMENTING NURSING CARE

General Applications

1. Takes appropriate nursing action to meet priority needs exhibited.	☐	☐	☐	☐	☐	☐
2. Applies knowledge of anatomy and physiology to patient care.	☐	☐	☐	☐	☐	☐
3. Takes appropriate nursing actions to compensate for altered physiology in disease.	☐	☐	☐	☐	☐	☐
4. Applies facts and principles of nutrition to patient care.	☐	☐	☐	☐	☐	☐
5. Makes use of comfort or nursing care measures until medical orders can be obtained.	☐	☐	☐	☐	☐	☐
6. Recognizes a patients' response to illness and therapy.	☐	☐	☐	☐	☐	☐
7. Carries out medical orders or nursing care procedures correctly despite difficulties.	☐	☐	☐	☐	☐	☐
8. Modifies nursing procedures to ensure more effective nursing care.	☐	☐	☐	☐	☐	☐
9. Carries out nursing care calmly and efficiently under stress.	☐	☐	☐	☐	☐	☐
10. Directs patients and families to the appropriate community resources.	☐	☐	☐	☐	☐	☐

	Poorly Prepared	Less than adequately prepared	Adequately prepared	More than adequately prepared	Excellently prepared	Not applicable
Specific Applications						
1. Able to prepare patients for their medical and surgical treatments physically and psychologically.	☐	☐	☐	☐	☐	☐
2. Able to explain diagnostic tests and nursing procedures to the patient as indicated.	☐	☐	☐	☐	☐	☐
3. Able to prepare patients physically for diagnostic procedures.	☐	☐	☐	☐	☐	☐
4. Able to administer medications safely to patients.	☐	☐	☐	☐	☐	☐
5. Able to take immediate and appropriate action in an emergency.	☐	☐	☐	☐	☐	☐
6. Able to implement nursing action to support vital functions e.g. cardiopulmonary resusitation.	☐	☐	☐	☐	☐	☐
7. Able to carry out commonly occurring techniques for patient care: oral suction, oxygen administration, tracheostomy care, intravenous therapy, tractions, catheterization, naso-gastric tube, ostomy care.	☐	☐	☐	☐	☐	☐
8. Able to recognize legal limits and their implications for nursing practice.	☐	☐	☐	☐	☐	☐
INTERPERSONAL RELATIONSHIPS AND COMMUNICATION						
Patient Relationships						
1. Tactful in handling difficult situations with patients	☐	☐	☐	☐	☐	☐
2. Able to keep information about patients confidential despite pressure to divulge it.	☐	☐	☐	☐	☐	☐
3. Prepared to adapt explanations to patient's understanding.	☐	☐	☐	☐	☐	☐
4. Ready to effectively teach principles of home health care to the patient and to the family of the patient.	☐	☐	☐	☐	☐	☐
5. Able to teach or initiate teaching of patients whose life style will be altered.	☐	☐	☐	☐	☐	☐
6. Reassuring, kind and considerate to patient.	☐	☐	☐	☐	☐	☐
Relationships with Superiors						
1. Ready to accept suggestions for self improvement.	☐	☐	☐	☐	☐	☐
2. Need minimum guidance in adjusting to new situations.	☐	☐	☐	☐	☐	☐
3. Able to consult and cooperate with physicians and others in planning health care programs.	☐	☐	☐	☐	☐	☐
4. Ready to be tactful in handling difficult situations with superiors.	☐	☐	☐	☐	☐	☐
5. Ready to seek assistance when needed.	☐	☐	☐	☐	☐	☐

	Poorly Prepared	Less than adequately prepared	Adequately prepared	More than adequately prepared	Excellently prepared	Not applicable
CARRY OUT UNIT PROCEDURES – PROVIDING LEADERSHIP						
1. Prepared to efficiently coordinate nursing care for a group of patients.	☐	☐	☐	☐	☐	☐
2. Able to be fair and considerate in directing the work of others.	☐	☐	☐	☐	☐	☐
3. Able to organize patient care so as to complete treatments and care on time.	☐	☐	☐	☐	☐	☐
4. Able to delegate tasks to personnel most able to perform them.	☐	☐	☐	☐	☐	☐
5. Able to conduct productive nursing care conferences.	☐	☐	☐	☐	☐	☐
6. Able to assume leadership and management responsibilities as needed.	☐	☐	☐	☐	☐	☐
7. Able to devise or suggest new techniques for the welfare of patients or for ward efficiency.	☐	☐	☐	☐	☐	☐
8. Able to assist in instructions and supervision of auxiliary personnel.	☐	☐	☐	☐	☐	☐
9. Able to make a written set of assignments of nursing care activities for each staff member.	☐	☐	☐	☐	☐	☐
10. Able to check to see that delegated tasks have been performed.	☐	☐	☐	☐	☐	☐
11. Prepared to promote improvement in nursing practice and nursing education.	☐	☐	☐	☐	☐	☐
EVALUATING NURSING CARE						
1. Able to evaluate, report, and record the effectiveness of medications administered to patients.	☐	☐	☐	☐	☐	☐
2. Able to interpret vital signs in terms of the different illnesses and health problems for various ages.	☐	☐	☐	☐	☐	☐
3. Able to recognize gross or subtle changes in patient's conditions and selects appropriate actions as indicated.	☐	☐	☐	☐	☐	☐
4. Prepared to report situations accurately despite reflection on self.	☐	☐	☐	☐	☐	☐
5. Able to write clear, concise, pertinent and accurate notes on patients.	☐	☐	☐	☐	☐	☐
6. Able to document all care provided for the patient.	☐	☐	☐	☐	☐	☐

THE DELTA SURVEY OF NURSES

The Delta Survey of Nurses contains a series of statements describing elements of nursing care. Read each one, evaluate the extent to which you feel you were prepared by your nursing program at Delta to successfully perform in these areas. Mark an X under the numbered column that best reflects your evaluation. If you find a statement which does not apply to your situation, mark it under the N/A (not applicable) column.

Try to avoid the tendency to mark all columns alike on the basis of a general impression about your training at Delta. Try to distinguish strengths and weaknesses as you see them.

Ratings of individuals will be held in strict confidence and will not be seen by anyone other than the project consultant.

NAME _____

PLACE OF EMPLOYMENT _____

DATE _____

The Delta Survey of Nurses was constructed by Dr. Barry J. Wilson of the University of Northern Iowa in cooperation with the Office of Research and Development and the Division of Nursing at Delta College, University Center, Michigan.

RATING SCALE

	Poorly Prepared	Less than adequately prepared	Adequately prepared	More than adequately prepared	Excellently prepared	Not applicable
PLANNING FOR NURSING CARE						
1. Able to identify patients' needs, taking into account the significant factors: such as, illness, age, general condition, treatment plan, religion, cultural background, etc.	☐	☐	☐	☐	☐	☐
2. Able to recognize the priority of needs for a patient.	☐	☐	☐	☐	☐	☐
3. Able to assess the condition of a patient accurately.	☐	☐	☐	☐	☐	☐
4. Able to initiate and write (if required) a plan of care to meet the needs of the patient.	☐	☐	☐	☐	☐	☐
5. Able to anticipate the usual pattern of patient progress in a specific condition.	☐	☐	☐	☐	☐	☐
6. Able to recognize the life threatening situations.	☐	☐	☐	☐	☐	☐
7. Able to use the techniques of problem solving in nursing care planning.	☐	☐	☐	☐	☐	☐
8. Able to coordinate the plan of nursing with the medical plan of care.	☐	☐	☐	☐	☐	☐
9. Able to make appropriate decisions for implementation of nursing care.	☐	☐	☐	☐	☐	☐
IMPLEMENTING NURSING CARE						
General Applications						
1. Able to take appropriate nursing action to meet priority needs exhibited.	☐	☐	☐	☐	☐	☐
2. Able to apply knowledge of anatomy and physiology to patient care.	☐	☐	☐	☐	☐	☐
3. Able to take appropriate nursing actions to compensate for altered physiology in disease.	☐	☐	☐	☐	☐	☐
4. Able to apply facts and principles of nutrition to patient care.	☐	☐	☐	☐	☐	☐
5. Able to make use of comfort or nursing care measures until medical orders can be obtained.	☐	☐	☐	☐	☐	☐
6. Able to recognize a patients' response to illness and therapy.	☐	☐	☐	☐	☐	☐
7. Able to carry out medical orders or nursing care procedures correctly despite difficulties.	☐	☐	☐	☐	☐	☐
8. Able to modify nursing procedures to ensure more effective nursing care.	☐	☐	☐	☐	☐	☐
9. Able to carry out nursing care calmly and efficiently under stress.	☐	☐	☐	☐	☐	☐
10. Able to direct patients and families to the appropriate community resources.	☐	☐	☐	☐	☐	☐

RATING SCALE

	Poorly prepared	Less than adequately prepared	Adequately prepared	More than adequately prepared	Excellently prepared	Not applicable
IMPLEMENTING NURSING CARE						
Specific Applications						
1. Prepares patients for their medical and surgical treatments physically and psychologically.	☐	☐	☐	☐	☐	☐
2. Explains diagnostic tests and nursing procedures to the patient as indicated.	☐	☐	☐	☐	☐	☐
3. Prepares patients physically for diagnostic procedures.	☐	☐	☐	☐	☐	☐
4. Administers medications safely to patients.	☐	☐	☐	☐	☐	☐
5. Takes immediate and appropriate action in an emergency.	☐	☐	☐	☐	☐	☐
6. Implements nursing action to support vital functions e.g., cardio-pulmonary resusitation.	☐	☐	☐	☐	☐	☐
7. Carries out commonly occurring techniques for patient care: oral suction, oxygen administration, tracheostomy care, intravenous therapy, tractions, catheterization, nasogastric tube, ostomy care.	☐	☐	☐	☐	☐	☐
8. Recognizes legal limits and their implications for nursing practice.	☐	☐	☐	☐	☐	☐
INTERPERSONAL RELATIONSHIPS AND COMMUNICATION						
Patient Relationships						
1. Tactful in handling difficult situations with patients.	☐	☐	☐	☐	☐	☐
2. Keeps information about patients confidential despite pressure to divulge it.	☐	☐	☐	☐	☐	☐
3. Adapts explanations to patient's understanding.	☐	☐	☐	☐	☐	☐
4. Effectively teaches principles of home health care to the patient and to the family of the patient.	☐	☐	☐	☐	☐	☐
5. Teaches or initiates teaching of patients whose life style will be altered.	☐	☐	☐	☐	☐	☐
6. Reassuring, kind and considerate to patient.	☐	☐	☐	☐	☐	☐
INTERPERSONAL RELATIONS AND COMMUNICATION						
Relationships with Superiors						
1. Accepts suggestions for self improvement.	☐	☐	☐	☐	☐	☐
2. Needs minimum guidance in adjusting to new situations.	☐	☐	☐	☐	☐	☐
3. Consults and cooperates with physicians and others in planning health care programs.	☐	☐	☐	☐	☐	☐
4. Tactful in handling difficult situations with superiors.	☐	☐	☐	☐	☐	☐
5. Seeks assistance when needed.	☐	☐	☐	☐	☐	☐

RATING SCALE

	Poorly prepared	Less than adequately prepared	Adequately prepared	More than adequately prepared	Excellently prepared	Not applicable
CARRY OUT UNIT PROCEDURES – PROVIDING LEADERSHIP						
1. Efficiently coordinates nursing care for a group of patients.	☐	☐	☐	☐	☐	☐
2. Fair and considerate in directing the work of others.	☐	☐	☐	☐	☐	☐
3. Organizes patient care so as to complete treatments and care on time.	☐	☐	☐	☐	☐	☐
4. Delegates tasks to personnel most able to perform them.	☐	☐	☐	☐	☐	☐
5. Conducts productive nursing care conferences.	☐	☐	☐	☐	☐	☐
6. Assumes leadership and management responsibilities as needed.	☐	☐	☐	☐	☐	☐
7. Devises or suggests new techniques for the welfare of patients or for ward efficiency.	☐	☐	☐	☐	☐	☐
8. Assists in instructions and supervision of auxiliary personnel.	☐	☐	☐	☐	☐	☐
9. Makes a written set of assignments of nursing care activities for each staff member.	☐	☐	☐	☐	☐	☐
10. Checks to see that delegated tasks have been performed.	☐	☐	☐	☐	☐	☐
11. Promotes improvement in nursing practice and nursing education.	☐	☐	☐	☐	☐	☐
EVALUATING NURSING CARE						
1. Evaluates, reports, and records the effectiveness of medications administered to patients.	☐	☐	☐	☐	☐	☐
2. Interprets vital signs in terms of the different illnesses and health problems for various ages.	☐	☐	☐	☐	☐	☐
3. Recognizes gross or subtle changes in patient's conditions and selects appropriate actions as indicated.	☐	☐	☐	☐	☐	☐
4. Reports situations accurately despite reflection on self.	☐	☐	☐	☐	☐	☐
5. Writes clear, concise, pertinent and accurate notes on patients.	☐	☐	☐	☐	☐	☐
6. Documents all care provided for the patient.	☐	☐	☐	☐	☐	☐